

SOP #2. Training Observers, version 1.0

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #

2.1 Purpose

The most important data collected on each survey visit are the amphibians which are present at a site. Because these data are used to estimate the occupancy of available habitats, it is absolutely essential that observers are trained to correctly identify amphibians that occur in the area. A false identification is a serious violation of the assumptions used in the analyses of data for occupancy estimation. The purpose of this document is to help ensure that field crews are properly trained.

2.2 Scope and Applicability

This document provides training guidelines for the Shenandoah Salamander Monitoring Program.

2.3 Procedures and General Requirements

2.3.1 Identification of Amphibians by Sight

- Observers should review reference materials (see SOP #1 and references below) and be familiar with identifying characteristics of all salamander species and their life stages found in Shenandoah National Park.
- Juvenile terrestrial salamanders are the most difficult life stage for species identification, but terrestrial juveniles generally resemble the adults. It is useful to be familiar with not only terrestrial species that occur in the park, but also stream species as they can occasionally be encountered within transects if a transect crosses ephemeral streams or seep-like areas. See Table 2.1 for list of species that have been encountered in *Plethodon shenandoah* habitat.

Table 2.1. Salamander species that have been encountered in *Plethodon shenandoah* habitat.

Common Name	Scientific Name
Shenandoah salamander	<i>Plethodon shenandoah</i>
Red-backed salamander	<i>Plethodon cinereus</i>
Slimy salamander	<i>Plethodon glutinosus</i>
Northern two-lined salamander	<i>Eurycea bislineata</i>
Northern dusky salamander	<i>Desmognathus fuscus</i>

- If a visual species identification cannot be confirmed in the field, several digital photographs should be taken in good lighting of dorsal, ventral and side views and any distinguishing features of the amphibian in natural positions, photograph numbers should be recorded on the data sheet for the corresponding individuals, and identification should be confirmed immediately upon returning from the field. Photographs should be labeled with <YearMonthDate_Site_IndividualNumber> and stored in the same location as the database for later reference. However, digital photographs are never a suitable surrogate for identification in the field.

2.3.2 Sampling Techniques: Amphibian and Habitat Protocols

- Observers should review the SOP for Occupancy site surveys (SOP #3) and data collection.
- Field crew leaders should provide training to new observers in field sampling techniques at least one day prior to the field season at a site which is not included in the monitoring program sampling frame.
- Previously trained observers should always accompany new observers on the first day of sampling to ensure proper understanding of sampling techniques.

2.4 Reference Documents

- Brand et al. (in prep). Investigation of false positive errors in a research program for *Plethodon* salamanders.
- Highton R, Worthington R. D. 1967. A new salamander of the genus *Plethodon* from Virginia. *Copeia* 1967:617–626.
- Petranka, J. W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, DC.
- Powell, R., Conant, R. and J. T. Collins. 2016. A Field Guide to Reptiles and Amphibians of Eastern and Central North America. Fourth edition. Houghton Mifflin Company, Boston.